New technology represents next-generation tool for detecting substandard and counterfeit medicines

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A new platform for detecting substandard and counterfeit medicines using microfluidics has been recognized with a grant from Saving Lives at Birth's "Grand Challenge through Development." Dubbed PharmaCheck, the technology is a portable, field-based tool for assessing the quality of medicines in developing countries with increased accuracy, sensitivity and reliability.

Through the Challenge, the U.S. Agency for International Development (USAID), Bill & Melinda Gates Foundation, Grand Challenges Canada and the U.K. Department for International Development sought groundbreaking prevention and treatment approaches for pregnant women and newborns in poor, hard-to-reach communities in developing countries. Substandard and counterfeit medicines for diseases including malaria, tuberculosis and HIV/AIDS pose a dire public health threat to patients in developing countries, in particular children and pregnant women. Such medicines can exacerbate the course of these diseases, even leading to death, as well as contribute to the growth of drug-resistant disease parasites—threatening the viability of treatments for patients worldwide.

Developed by Boston University in collaboration with the Promoting the Quality of Medicines (PQM) program, which is supported by USAID and implemented by the U.S. Pharmacopeial Convention (USP), PharmaCheck has reached the proof of concept stage—demonstrating a

quantitation linear relationship for analysis of an antimalarial medicine of interest on a microfluidic chip. The technology addresses shortcomings of current field-based, portable quality control laboratories currently in use throughout the developing world—including the inability to precisely and accurately measure the percentage of the active pharmaceutical ingredient or other important quality attributes of medicines. These are key to determining whether a medicine is of poor quality or not. Furthermore, the technology is expected to greatly reduce the need for confirmation of field-tested results at fully equipped quality control laboratories.

"This technology promises to be groundbreaking in the fight against substandard and counterfeit medicines," said Mr. Anthony Boni, Pharmaceutical Management Specialist for USAID's Global Health Bureau, Office of Health, Infectious Diseases and Nutrition/Health Systems Division. "Inexpensive, easy-to-use and effective, we expect that PharmaCheck will represent a paradigm shift in combating the scourge of poor-quality medicines. One of the most exciting elements is the ability to potentially deploy this technology at point-of-use, with an ultimate vision of healthcare facilities, clinics and hospitals using the technology to verify the quality of the medicines they receive."

"This technology is an important breakthrough as we strive to help ensure the quality, safety and efficacy of medicines essential to treating patients suffering from malaria, tuberculosis and HIV/AIDS in developing countries around the world," said Dr. Patrick Lukulay, Vice President of Global Health Impact Programs for USP and Director of the PQM Program. "This will be a very powerful tool with broad application and impact. We are very pleased to be partnering with Boston University in advancing this technology."

With this new grant, Boston University, led by Dr. Muhammad Zaman, will be able to accelerate development of PharmaCheck and the

deployment of a finished product.

Provided by US Pharmacopeia